Complete Summary

GUIDELINE TITLE

Chronic cough due to nonbronchiectatic suppurative airway disease (bronchiolitis): ACCP evidence-based clinical practice guidelines.

BIBLIOGRAPHIC SOURCE(S)

Brown KK. Chronic cough due to nonbronchiectatic suppurative airway disease (bronchiolitis): ACCP evidence-based clinical practice guidelines. Chest 2006 Jan;129(1 Suppl):132S-7S. [24 references] PubMed

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE
METHODOLOGY - including Rating Scheme and Cost Analysis
RECOMMENDATIONS
EVIDENCE SUPPORTING THE RECOMMENDATIONS
BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS
QUALIFYING STATEMENTS
IMPLEMENTATION OF THE GUIDELINE
INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES
IDENTIFYING INFORMATION AND AVAILABILITY
DISCLAIMER

SCOPE

DISEASE/CONDITION(S)

Chronic cough due to nonbronchiectatic suppurative airway disease (bronchiolitis), including:

- Infectious bronchiolitis
- Bronchiolitis associated with inflammatory bowel disease
- Diffuse panbronchiolitis (DPB)

GUIDELINE CATEGORY

Diagnosis
Management
Treatment

CLINICAL SPECIALTY

Family Practice
Internal Medicine
Pulmonary Medicine

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

To review the role of nonbronchiectatic suppurative airway disease (bronchiolitis) in the spectrum of causes of cough and its management

TARGET POPULATION

Patients with cough due to nonbronchiectatic suppurative airway disease (bronchiolitis)

INTERVENTIONS AND PRACTICES CONSIDERED

Diagnosis

1. Medical history
2. Physical examination
3. Physiologic testing (spirometry with and without bronchodilator, lung volumes, and gas exchange)
4. Radiographic studies (chest radiograph [CXR] and high-resolution computed tomography [HRCT] scans with expiratory cuts)
5. Surgical lung biopsy
6. Bronchoscopy

Treatment/Management

1. Prolonged antibiotic therapy
2. Trial of macrolide therapy (erythromycin or other 14-member ring macrolides such as clarithromycin and roxithromycin), for diffuse panbronchiolitis (DPB)
3. Corticosteroid therapy (inhaled or oral)
4. Avoidance of exposure to causal agents (for toxic/antigenic or drug-related bronchiolitis)

MAJOR OUTCOMES CONSIDERED

- Symptom improvement (including cough, sputum and mucus production)
- Biomarkers of disease
- Utility of diagnostic tests

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The evidence review procedures included section-specific targeted searches as well as a formal systematic review on selected topics.

Formal Systematic Reviews

Formal systematic reviews on selected topics covered in the guideline were performed by the Center for Clinical Health Policy Research at Duke University Medical Center. For the key questions addressed by the formal systematic reviews see the section titled "Methodology and Grading of the Evidence for the Diagnosis and Management of Cough" (see "Availability of Companion Documents" field).

Literature Search Strategy

The Duke University research team conducted a systematic and comprehensive literature review that began with searches of MEDLINE from 1966 through August 2003 with limits of articles published in the English language and with human subjects. Search terms included the medical subject heading term "cough" combined with a published strategy for identifying randomized controlled trials (RCTs). A separate search combined the medical subject heading terms "bronchiectasis," "cystic fibrosis," and "respiratory therapy" with the RCT strategy. However, searches using terms related to the therapeutic use of specific agents, including "antitussive agents," "expectorants," "bronchodilator agents," "ipratropium," "albuterol," "orciprenaline," and "cromolyn sodium" had poor specificity in the absence of the term "cough," and thus were not used. Additional searches were targeted to double-blind RCTs of nonspecific antitussive therapy and protussive drugs (e.g., expectorant, mucolytic, mucus-modifying agents) for all indications other than those listed in question 2 in the section titled "Methodology and Grading of the Evidence for the Diagnosis and Management of Cough" (see "Availability of Companion Documents" field) that reported on cough clearance or cough symptoms and had been published since the previous American College of Chest Physicians cough guidelines were published. The trials identified in this search were provided to the section authors.

In addition to MEDLINE, the Duke University research team searched the National Guideline Clearinghouse and the Cochrane Library (including the Cochrane Database of Systematic reviews, the Cochrane Controlled trial register, and the Database of Abstracts of Reviews of Effectiveness). Additional studies were identified from the reference lists of review articles and by querying experts in the field.

Inclusion and Exclusion Criteria

The criteria for the inclusion and exclusion of articles were developed for each research question and are shown in Table 1 in the section titled "Methodology and Grading of the Evidence for the Diagnosis and Management of Cough (see the "Availability of Companion Documents" field). The abstracts of all articles were reviewed by two physicians (one with methodological expertise and one with content area expertise), and those meeting the inclusion criteria were selected for review in full text.

Section-Specific Review

A MEDLINE search (through May 2004) was conducted for studies published in the English language since 1980 on human subjects using the medical subject heading terms "cough," "causes of cough," "etiology of cough," "interstitial lung disease" (ILD), "bronchiolitis," "bronchiolitis obliterans," "diffuse panbronchiolitis" (DPB), and "inflammatory bowel disease" (IBD) was performed. Case series and prospective descriptive clinical trials were selected for review. Any references from these studies that were pertinent to the topic were also obtained.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Expert Consensus
Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Quality of the Evidence

Good = evidence based on good randomized controlled trials (RCTs) or meta-analyses

Fair = evidence based on other controlled trials or RCTs with minor flaws

Low = evidence based on nonrandomized, case-control, or other observational studies

Expert opinion = evidence based on the consensus of the carefully selected panel of experts in the topic field. There are no studies that meet the criteria for inclusion in the literature review.

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Note from the National Guideline Clearinghouse (NGC): The evidence review procedures included section-specific targeted searches as well as a formal systematic review on selected topics. Formal systematic reviews on selected topics covered in the guideline were performed by the Center for Clinical Health Policy Research at Duke University Medical Center. For more information see the section titled "Methodology and Grading of the Evidence for the Diagnosis and Management of Cough" (see "Availability of Companion Documents" field).

Formal Systematic Reviews

Synthesis

Details from "included" articles (see the "Description of Methods Used to Collect/Select the Evidence" field) were extracted and recorded into evidence tables. No quantitative synthesis, such as meta-analysis, was performed, but aggregated data were described and analyzed qualitatively.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus
Expert Consensus (Consensus Development Conference)
Informal Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

The recommendations were formulated by an international panel of 26 experts representing seven clinical specialties. Many were members of the American College of Chest Physicians (ACCP), but representatives from other medical associations, including the American College of Physicians, Canadian Thoracic Society, and American Thoracic Society, also participated on the panel. These experts convened on several occasions, including a panel conference in Boston, MA, in November 2004, in which they deliberated the final content and recommendations, the rating of the quality of the evidence, the estimation of benefits to the patient population, and the grading of the strength of the recommendations. Authors were selected, or in some cases writing committees were formed, for each topic to review evidence, write an article, and draft guidelines. These assignments were made by the steering committee based on the authors' known expertise in that specific area of the diagnosis and treatment of cough, and their research and writing skills.

The recommendations were graded, by consensus of the panel, using the ACCP Health and Science Policy Grading System, which is based on the following two components: quality of the evidence; and the net benefit of the diagnostic or therapeutic procedure. The quality of evidence is rated according to the study design and strength of the other methodologies used in the included studies. The net benefit of the recommendation is based on the estimated benefit to the specific patient population described in each recommendation and not for an individual patient. The authors of each recommendation proposed their best estimate of the net benefit, and the entire panel considered these choices for each recommendation. At the conference, the panel revised the assessments of net benefit for many recommendations to be consistent across all recommendations.

When there was insufficient evidence, the panel used informal group consensus techniques to refine or develop recommendations based on the expert opinion of the panel. Eighty percent of the panel was in attendance at the final conference to collaborate on the final wording and grading of the recommendations. Even those recommendations that were based on expert opinion were considered to be worthy of inclusion, as they were the recommendations of an international and multidisciplinary team with considerable expertise in the diagnosis and treatment of patients with cough.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Strength of Recommendations

A = strong recommendation

B = moderate recommendation

C = weak recommendation

D = negative recommendation

I = no recommendation possible (inconclusive)

E/A = strong recommendation based on expert opinion only

E/B = moderate recommendation based on expert opinion only

E/C = weak recommendation based on expert opinion only

E/D = negative recommendation based on expert opinion only

Net Benefit

Substantial = There is evidence of benefit that clearly exceeds the minimum clinically significant benefit and evidence of little harm

Intermediate = Clear evidence of benefit but with some evidence of harms, with a net benefit between that defined for "substantial" and "small/weak"

Small/weak = There is evidence of a benefit that may not clearly exceed the minimum clinically significant benefit, or there is evidence of harms that substantially reduce (but do not eliminate) the benefit such that it may not clearly exceed the minimum clinically significant benefit

None = Evidence shows that either there is no benefit or the benefits equal the harms

Conflicting = Evidence is inconsistent with regard to benefits and/or harms such that the net benefit is uncertain

Negative = Expected harms exceed the expected benefits to the population

Table: Relationship of Strength of the Recommendations Scale to Quality of Evidence and Net Benefits

	Net Benefit					
Quality of Evidence	**Substantial**	**Intermediate**	**Small/Weak**	**None**	**Conflicting**	**Negative**
Good	A	A	B	D	I	D
Fair	A	B	C	D	I	D
Low	B	B	C	I	I	D
Expert Opinion	E/A	E/B	E/C	I	I	E/D

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

The executive committee of the panel extensively reviewed each section of the guideline manuscript during the writing process. The November 2004 conference provided an opportunity for the entire panel to review the latest drafts. Following final revisions and one final review by the executive committee, each section of the guidelines was reviewed and approved by the Clinical Pulmonary Medicine, Respiratory Care, Pediatric Chest Medicine, Environmental and Occupational and Airways Disorders NetWorks of the American College of Chest Physicians (ACCP), as well as the ACCP Health and Science Policy Committee, and subsequently by the ACCP Board of Regents.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Definitions for the level of evidence, strength of recommendation, and net benefit follow the "Major Recommendations."

Clinical Classification of Bronchiolitis

Clinical Class	Specific Examples
Infections	*Mycoplasma pneumoniae*, respiratory syncytial virus
Inhalational mechanism	
Toxins	Respiratory bronchiolitis (tobacco smoke), sulfur dioxide

Clinical Class	Specific Examples
Antigens	Hypersensitivity pneumonitis
Systemic diseases	Collagen vascular disease, inflammatory bowel disease, immunodeficiency
Drug reactions	Penicillamine, amiodarone
Allograft recipients	Lung and bone marrow transplant
Idiopathic disorders	Bronchiolitis obliterans (cryptogenic constrictive bronchiolitis), follicular bronchiolitis, diffuse panbronchiolitis (DPB)

1. In patients with cough and incomplete or irreversible airflow limitation, direct or indirect signs of small airways disease seen on high resolution computed tomography (HRCT) scan, or purulent secretions seen on bronchoscopy, nonbronchiectatic suppurative airways disease (bronchiolitis) should be suspected as the primary cause. **Level of evidence, expert opinion; benefit, substantial; grade of recommendation, E/A**
2. In patients with cough in whom more common causes have been excluded, because bacterial suppurative airways disease may be present and clinically unsuspected, bronchoscopy is required before excluding it as a cause. **Level of evidence, low; benefit, substantial; grade of recommendation, B**
3. In patients in whom bronchiolitis is suspected, a surgical lung biopsy should be performed when the combination of the clinical syndrome, physiology, and HRCT findings do not provide a confident diagnosis. **Level of evidence, expert opinion; benefit, substantial; grade of recommendation, E/A**
4. In patients with infectious bacterial bronchiolitis, prolonged antibiotic therapy improves cough and is recommended. **Level of evidence, low; benefit, substantial; grade of recommendation, B**
5. In patients with toxic/antigenic exposure or drug-related bronchiolitis, cessation of the exposure or medication plus corticosteroid therapy for those with physiologic impairment is appropriate. **Level of evidence, expert opinion; benefit, substantial; grade of recommendation, E/A**
6. In the inflammatory bowel disease (IBD) patient with cough, bronchiolitis should be suspected as a potential cause. **Level of evidence, low; benefit, substantial; grade of recommendation, B**
7. In patients in whom IBD-related bronchiolitis is suspected, both adverse drug reaction and infection should be specifically considered. **Level of evidence, expert opinion; benefit, substantial; grade of recommendation, E/A**
8. In patients with IBD, therapy with both oral and inhaled corticosteroids may improve cough, and a trial of therapy is suggested. **Level of evidence, low; benefit, substantial; grade of recommendation, B**
9. In patients with chronic cough who have recently lived in Japan, Korea, or China, diffuse panbronchiolitis (DPB) should be considered as a potential cause. **Level of evidence, low; benefit, substantial; grade of recommendation, B**
10. In patients with suspected DPB, an appropriate clinical setting and characteristic HRCT scan findings may obviate the need for invasive testing and a trial of macrolide therapy (erythromycin or other 14-member ring macrolides such as clarithromycin and roxithromycin) is appropriate. **Level of evidence, expert opinion; benefit, substantial; grade of recommendation, E/A**
11. In patients with DPB, prolonged treatment ($\geq$ 2 to 6 months) with erythromycin (or other 14-member ring macrolides such as clarithromycin

and roxithromycin) is recommended. **Level of evidence, low; benefit, substantial; grade of recommendation, B**

Definitions:

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Low	B	B	C	I	I	D
Expert Opinion	E/A	E/B	E/C	I	I	E/D

CLINICAL ALGORITHM(S)

The following clinical algorithms are provided in the section titled "Diagnosis and Management of Cough Executive Summary" (see "Availability of Companion Documents" field)"

- Acute cough algorithm for the management of patients ≥15 years of age with cough lasting <3 weeks
- Subacute cough algorithm for the management of patients ≥15 years of age with cough lasting 3 to 8 weeks
- Chronic cough algorithm for the management of patients ≥15 years of age with cough lasting >8 weeks
- Approach to a child <15 years of age with chronic cough
- Approach to a child ≤14 years of age with chronic specific cough

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate diagnosis and effective management of cough due to nonbronchiectatic suppurative airway disease (bronchiolitis)

POTENTIAL HARMS

Not stated

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- The information provided in the guideline should be used in conjunction with clinical judgment. Although the guideline provides recommendations that are based on evidence from studies involving various populations, the recommendations may not apply to every individual patient. It is important for the physician to take into consideration the role of patient preferences and the availability of local resources.
- The American College of Chest Physicians (ACCP) is sensitive to concerns that nationally and/or internationally developed guidelines are not always applicable in local settings. Further, guideline recommendations are just that, recommendations not dictates. In treating patients, individual circumstances, preferences, and resources do play a role in the course of treatment at every decision level. Although the science behind evidence-based medicine is rigorous, there are always exceptions. The recommendations are intended to guide healthcare decisions. These recommendations can be adapted to be applicable at various levels.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

IMPLEMENTATION TOOLS

Clinical Algorithm

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Brown KK. Chronic cough due to nonbronchiectatic suppurative airway disease (bronchiolitis): ACCP evidence-based clinical practice guidelines. Chest 2006 Jan;129(1 Suppl):132S-7S. [24 references] PubMed

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2006 Jan

GUIDELINE DEVELOPER(S)

American College of Chest Physicians - Medical Specialty Society

SOURCE(S) OF FUNDING

American College of Chest Physicians

GUIDELINE COMMITTEE

American College of Chest Physicians (ACCP) Expert Panel on the Diagnosis and Management of Cough

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

The American College of Chest Physicians (ACCP) has a very stringent approach to the issue of potential or perceived conflicts of interest. This policy is published on the ACCP Web site at www.chestnet.org. All conflicts of interest within the preceding 5 years were required to be disclosed by all panelists, including those who did not have writing responsibilities, at face-to-face meetings, the final conference, and prior to submission for publication.

The most recent of these are documented in the published guideline supplement. Furthermore, the panel was instructed in this matter, verbally and in writing, prior to the deliberations of the final conference.

ENDORSER(S)

American Thoracic Society - Medical Specialty Society
Canadian Thoracic Society - Medical Specialty Society

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available to subscribers of Chest - The Cardiopulmonary and Critical Care Journal.

Print copies: Available from the American College of Chest Physicians, Products and Registration Division, 3300 Dundee Road, Northbrook IL 60062-2348.

AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

- Diagnosis and management of cough executive summary: ACCP evidence-based clinical practice guidelines. Northbrook, IL: ACCP, 2006 Jan.

Background and Methodology Information

- Introduction to the diagnosis and management of cough: ACCP evidence-based clinical practice guidelines. Northbrook, IL: ACCP, 2006 Jan.
- Methodology and grading of the evidence for the diagnosis and management of cough: ACCP evidence-based clinical practice guidelines. Northbrook, IL: ACCP, 2006 Jan.

Additional Background Information

- Anatomy and neurophysiology of the cough reflex: ACCP evidence-based clinical practice guidelines. Northbrook, IL: ACCP, 2006 Jan.
- Global physiology and pathophysiology of cough: ACCP evidence-based clinical practice guidelines. Northbrook, IL: ACCP, 2006 Jan.
- Complications of cough: ACCP evidence-based clinical practice guidelines. Northbrook, IL: ACCP, 2006 Jan.

- Overview of common causes of chronic cough: ACCP evidence-based clinical practice guidelines. Northbrook, IL: ACCP, 2006 Jan.
- Assessing cough severity and efficacy of therapy in clinical research: ACCP evidence-based clinical practice guidelines. Northbrook, IL: ACCP, 2006 Jan.
- Potential future therapies for the management of cough: ACCP evidence-based clinical practice guidelines. Northbrook, IL: ACCP, 2006 Jan.
- Future directions in the clinical management of cough: ACCP evidence-based clinical practice guidelines. Northbrook, IL: ACCP, 2006 Jan.

Electronic copies: Available to subscribers of Chest - The Cardiopulmonary and Critical Care Journal.

Print copies: Available from the American College of Chest Physicians, Products and Registration Division, 3300 Dundee Road, Northbrook IL 60062-2348.

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on May 4, 2006. The information was verified by the guideline developer on June 5, 2006.

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